ljm Libyan Journal of Medicine
COACTION PUBLISHING

LETTER TO THE EDITOR

Toxicology services in Libya: the present and the future

Healthcare services in Libya are in need of major efforts to tackle the reconstruction challenges and to revitalize the whole system. The aim is to provide a healthcare system centered around people's needs and expectations, up-to-date with the latest medical advances, and capable of meeting rising demands (1, 2).

In Libya, there is no robust poison and toxicology service. This was evident during the 'methanol crisis' in March 2013 in Tripoli (3). Though official data are lacking, it has been reported that up to 1,050 patients were affected, with fatalities as high as 100 (4). Some survivors suffered from permanent central nervous system damage (5).

Medecins Sans Frontiers (MSF) launched a special humanitarian mission during the aforementioned crisis and sent a team to Tripoli. They reported that 'the health personnel at the various hospitals seemed to do a heroic job in trying to treat as many as possible. They did not have a lot of experience in the treatment of these poisonings, and so antidote was seldom given' (5).

A poisoned patient admitted to hospitals in Libya will generally be treated on an *ad hoc* basis, with no clear guidelines or protocols. Furthermore, there is no toxicology laboratory in the entire country. Also, the mode of management of poisoned patients in Libya is outdated. For example, gastric lavage – the routine use of which has been abolished long since in the rest of the world – is still used routinely for treating poisoned patients (6). Most antidotes are not available, and if they were, they are often given in wrong doses and timing.

National toxicology service

In developed countries, there exists a standardized model for delivering toxicology services. It is based on a centralized national service providing expert advice on all aspects of acute and chronic poisoning. This ensures optimal care for patients in cases of severe poisoning, and where toxicity is low, it prevents unnecessary hospitalization.

Such a model has proven its efficacy in reducing the number of emergency department visits for cases of poisoning and reducing the length of hospital stay (7–9). In Louisiana, United States, the closure of poison control services resulted in a four-fold increase in the rate of cases of poisoning 'self-referred' to healthcare institutes (10).

Data from the United States show that every dollar invested in the poison center system saved $13.39 in healthcare costs and productivity (11).

Such a service has also proven beneficial in toxicovigilance, identifying and limiting public health outbreaks (12, 13).

Due to the relatively small population size of Libya, a central, single unit will suffice to provide the service for the entire country, ranging from individual cases to major incident planning and preparedness.

The poison service will consist of clinical toxicologists, clinical toxinologists, specialists in poison information, clinical geneticists, pharmacists, human resources, and IT personnel.

Appropriate training of high standards can be provided for toxicology staff at international centers.

The poison service should provide a network of activities, including:

1. Online clinical toxicology database
   - Healthcare professionals will have direct access to an online clinical toxicology database, which provides information on toxicity, clinical features, and management of poisons. This should be referred to before telephoning the poison center.
   - The database is updated by specialists in poison information under the supervision of physicians.
2. National Telephone Information Service
   - Individual advice on serious or complex cases will be available via a 24-h telephone service, delivered by specialists in poison information.
   - An enquiry that cannot be handled by the scientists will be referred to the on-call consultant toxicologist for advice.
3. Teratology and medicines in lactation specialist advisory service
   - The service will provide advice on the effects of drug and chemical exposures during pregnancy and lactation, via both the online database and telephone enquiries.
4. Antidote database
   - The service will introduce a storage network for antidotes, mapping the entire country, to ensure timely access to antidotes in line with international guidelines (14).
   - The service will maintain an up-to-date registry on the location of antidotes, stocks, and expiry date.

Citation: Libyan J Med 2014, **9**: 24292 - http://dx.doi.org/10.3402/ljm.v9.24292

- The service will establish and maintain a dynamic chain of supply of antidotes in cases of mass poisoning.

5. Toxicology laboratories:
   - A state-of-the-art toxicology laboratory will be attached to the service, mainly for rare and non-urgent assays.
   - The service will help set up local and regional toxicology laboratories for the most common poisons in line with international guidelines and recommendations.

Conclusion

Toxicology services do not exist in Libya, and there is an urgent need to create and develop such a service, which is both robust and evidence based. An internationally recognized model can be established to support healthcare professionals in managing poisoned patients and to develop contingency plans in emergency situations involving poisoning of mass populations.

Conflict of interests and funding

The authors have not received any funding or benefits from industry or elsewhere to conduct this study.

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